

REMARKS

New claims 37 and 38 have been added so that claims 1-38 are now in the application. Claims 5-8, 10-18 and 27-30 have been withdrawn from consideration.

Claims 1-4 and 9 were rejected under 35 USC 103(a) as being unpatentable over Ohtomo in view of Lyons. Claim 1, which has been amended to include the recitation from claim 2, is distinguished over these references by reciting:

"ion beam sputtering a ferromagnetic material layer on the underlying layer and on the side and top surfaces of the shaping layer with the sputtering being directed at an angle to a normal to said flat surface; and"

In regard to claim 2 the Examiner stated:

"As per **claim 2** Lyons et al. teach a process of depositing the layer (18) in a suitable manner (col. 6, lines 66-67) including a CVD technique. Even though Lyons et al. do not teach a ion beam sputtering process for depositing, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to deposit the material including the ion beam sputtering process as recited in the claimed invention because Applicant has not disclosed that the depositing process as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to form equally with Lyons et al. because the ion beam sputtering process as recited in the claimed invention would form the material equally with the depositing process in Lyons et al. Therefore, it would have been an obvious matter of design choice to modify the depositing process of Lyons et al. to obtain the invention as specified in claim 2."

The Applicants respectfully disagree with the Examiner that it would have been an obvious matter of design choice to a person of ordinary skill in the art to deposit the material including the ion beam sputtering process as recited in the claimed invention because Applicants have not disclosed that the depositing process as recited in the claimed invention provides an advantage, is used for a particular purpose or solves a stated problem. The Applicants maintain that, in contrast, the specification does disclose that the depositing process as recited in the claimed invention provides an advantage and is used for a particular purpose. On page 3 of the specification, lines 27-29, it is stated:

" In a preferred embodiment a ferromagnetic material layer is ion beam sputtered on the underlying layer and on the side and top surfaces of the shaping layer at an angle to a normal to the underlying layer. . . . "

Page 8, lines 11-15 state:

" In Fig. 11C pole tip material, such as nickel iron (NiFe), is ion beam sputtered on the top of the photoresist layer 200, the side 202 of the photoresist layer and the top of the write gap layer 102 at a maximum angle θ to a normal 204 to the major thin film surface 206 of the write gap layer. The angle θ can be in the order of 70° "

Page 9, lines 21-25 state:

"As shown in Fig. 12D, pole tip material is ion beam sputtered on the top surface of the hard mask 302, the side walls 306 and 308 and the top surface of the write gap layer 102. Again, the ion beam sputtering should be at a maximum angle θ to a normal 310 to major plane 312 of the write gap layer. . . . "

Page 10, lines 22-28 state:

"When angular ion beam sputtering greater than 45° is employed the thickness of the pole material on the vertical step of the forming layer is greater than the thicknesses of the pole material on the horizontal surfaces. Angular ion beam sputtering is fully described in commonly assigned copending application Serial No. 09/458,581 filed December 9, 1999 which is incorporated in its entirety by reference herein. Preferred ion beam sputtering angles are within a range from 45° to 90° and even more preferably within a range from 65° to 70° ."

These disclosures teach that when the sputtering angle is directed at an angle to a normal to the flat surface of the underlying layer that the ferromagnetic material is deposited on the side surface of the shaping layer. As the angle is increased there is an increase in the amount of ferromagnetic material deposited on the side surface. As stated in the specification, the preferred angle is from 45° to 90° with even a more preferable range from 65° to 70° . As further stated in the specification, the angle can be on the order of 70° . The specific limitations are now recited in amended claim 2 and new claims 37 and 38. The Applicants maintain that these claims are clearly distinguished over Ohtomo in view of Lyons since Lyons teaches only CVD deposition with no

suggestion of ion beam sputtering at an angle to a normal to the underlying layer. Claim 9, which is dependent upon claim 2, is considered to be patentable over these references for the same reasons as given in support for claim 1.

Claims 31-36, which were new claims added to the application in the previous amendment, were not acted upon by the Examiner in the present Office Action. These claims, which are dependent upon claim 2, are considered to be patentable over the references for the same reasons as given in support for claim 2.

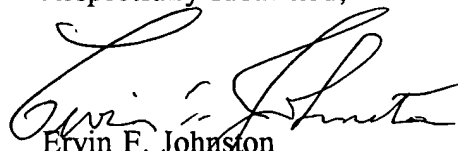
New claims 37 and 38 and claims 31-36 read upon Applicants' elected Species DA.

Claim 32 is considered to be patentable over the references for the same reasons as given in support for claim 1. Claims 33-36, which are dependent upon claim 32, are considered to be patentable over the references for the same reasons as given in support for claim 1 and are further distinguished over the references by their specific limitations therein.

Please note that the undersigned has a new telephone number which is **808-661-1197**.

Should the Examiner have any questions regarding this document he is respectfully requested to contact the undersigned.

Respectfully submitted,



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